SPECIFICATION

TO WHOM IT MAY CONCERN:

BE IT KNOWN THAT I, Mark A. Wolfe, a Citizen of the United States and a resident of Minneapolis, Hennepin County, Minnesota, have invented certain new and useful improvements in a

DOCUMENT RESEARCH SYSTEM AND METHOD FOR DISPLAYING CITING DOCUMENTS

of which the following is a specification.

DOCUMENT RESEARCH SYSTEM AND METHOD FOR DISPLAYING CITING DOCUMENTS

FIELD OF THE INVENTION

The present invention relates to a system and method of displaying information on a computer screen. A system employing the present invention provides an efficient procedure for researching documents and the interrelationships between documents. The present invention is particularly applicable to research involving documents that extensively cite or refer to other documents.

BACKGROUND OF THE INVENTION

The nature of many academic and professional writings is such that authors rely upon and cite previously published works, studies, or test results to support arguments or opinions. For example, in the common law system in America, lawyers and judges cite and rely upon previously decided cases (i.e., written judicial opinions) to support their arguments and opinions. The American common law system is particularly reliant upon the precedent established by previous case decisions because a judicial court (or judge) will usually consider as very persuasive a previously-decided case in which the same legal issue has been resolved or decided.

However, courts will not always agree with, or be bound by, previously-decided cases. Instead of agreeing with a conclusion reached in a previous case, or "following" it, courts may occasionally, disagree with, criticize, question, reverse, or overrule the previous case. Therefore, beginning with the first time a case is cited in a subsequent case, the earlier case's authoritative value can change. For example, if a persuasive judge is critical of the earlier case, that earlier case will be less authoritative than it was before the judge's critical treatment of the case. On the other hand, if the judge strongly supports the reasoning of the earlier case, the

authoritative value of the earlier case will be enhanced. Virtually every time a case

2 is discussed or cited, its authoritativeness or precedential status is affected. The
importance or precedential status of a case can continue to evolve over many years

4 as a result of interpretations given to it by judges in subsequent cases.

Therefore, when considering a legal issue decided in a court's written opinion

6 or decision, it is critical to consider what subsequent cases have said about it.
Lawyers performing legal research consequently have a need to determine which

8 later cases have discussed (and therefore, cited) any given earlier case. For many
years, lawyers have been able to find out which later cases have cited any given case

10 by using a tool known as Shepard's Citations published by McGraw-Hill, Inc.
Shepard's Citations is basically an organized index that lists all the cases that have

12 cited a particular case. When a later case cites an earlier case, there is usually some
discussion of the earlier, cited case. Shepard's Citations also sometimes gives a brief

14 indication of how the later case treated the earlier case of interest (e.g., the later case
may have "followed," "criticized," or "questioned" the earlier case).

16 In recent years, legal research has been increasingly performed by lawyers
using computerized legal research systems. The most popular of these may be the

18 on-line legal research systems, such as Westlaw and LEXIS/NEXIS. However, legal
research systems employing local CD-ROM or other databases have become quite

20 popular.

Figure 1a is a representation of a screen taken from the Westlaw legal

22 research system operated by the West Publishing Company. The screen shows a
portion of the text of the Wilson Sporting Goods case shown at 101 in Figure 1a.

24 The title bar 102 includes the citations 103 for the Wilson case, which are 904 F.2d
677, and 14 U.S.P.Q.2d 1942. These two citations mean that the Wilson case can be

26 found starting at page 677 of volume 904 of the F.2d reporter series, or alternatively,
starting at page 1942 of volume 14 of the U.S.P.Q.2d reporter series.

28 Also shown in the title bar 102 is the "rank" 104 of the displayed document,
which is simply the position or order of the Wilson case with respect to all of the

other documents found in the search conducted by the user. In this particular example, the Wilson case is ranked second out of three search documents. Each of the search documents is a document that satisfies a particular query entered by the user, and in the example shown in Figure 1a, three documents in the database CTA satisfy the user's query.

The current page number and the number of pages in the document are shown in Figure 1a at 105. The number of pages essentially corresponds to the number of screens the Wilson case fills. For example, Figure 1a shows the first Westlaw page of the Wilson case, and Figure 1b shows Westlaw page 25. Figure 1b is the screen that is twenty-fifth of the thirty-nine screens that make up the Wilson case. Figures 1a and 1b thus simply show different portions of the text of the Wilson case.

As described above, when researching issues that are discussed in the Wilson case, it is very useful to see what subsequently decided cases have said about the analysis in the Wilson case. The Westlaw system provides access to this type of information through a number of services, one of which is the on-line version of Shepard's Citations. In the Westlaw system, the user can access this information by selecting a menu item from a pull-down menu or by selecting (i.e., "clicking on") an on-screen button. When the user selects the Shepard's Citation service in Westlaw while viewing the Wilson case, a screen similar to that shown in Figure 1c is displayed.

The top of Figure 1c shows at 110 a citation to the cited document, 904 F.2d 677, which is the citation to the Wilson case. Thus, the Wilson case is considered, in this screen, to be the "cited" document. A parallel citation to the Wilson case is shown at 114. Figure 1c also contains a list 112 of citations to a number of cases. The citations in this list 112 are references to cases which cite the Wilson case. These cases listed at 112 are called "citing cases" because they are later cases that cite the Wilson case (i.e., the cited case). In other words, the text of each of the cases shown in the list 112 contains a specific reference to the Wilson case.

The citation 116 at the bottom of Figure 1c ("140 F.R.D. 121, 127"), indicates

2   that a case having a citation to the Wilson case can be found starting at page 121 of
volume 140 of the F.R.D. (Federal Rules Decisions) reporter series. The specific

4   citation or reference to the Wilson case can be found on page 127 of that volume.
Figure 1c also shows at 118 that this citation references headnote 9 of the Wilson

6   case. This means that the case at 140 F.R.D. 121 cites the Wilson case for the issue
discussed at headnote 9 of the Wilson case. The headnotes are prepared and

8   categorized by the West Publishing Company.

As suggested at 120 of Figure 1c, the Shepard's listing for the Wilson case

10   spans eight Westlaw screens. Page 2 of the Shepard's listing is shown in Figure 1d.
This page lists additional citing cases (i.e., cases that cite the Wilson case). As can be

12   seen from Figures 1c and 1d, the Shepard's citations are listed in a somewhat
organized manner. For example, in Figure 1d, the cases decided in the First Circuit

14   that cite the Wilson case are listed under the heading "Cir. 1," and the cases in the
Second Circuit that cite the Wilson case are listed under heading "Cir. 2."

16   Figure 1d also shows an instance in which the Shepard's listing analyzes one
of the listed citations. At 122, the Shepard's listing suggests that the case published

18   at 796 F.Supp. 640 (the "citing case") "followed" the analysis or reasoning of the
Wilson case. This means that the citing case (found at 796 F.Supp. 640) applied the

20   same analysis as the court in the Wilson case. The Shepard's Citations listing also
will occasionally provide other analysis of citing cases, and may, for example, point

22   out those cases which "explain," "criticize," or "reverse" the Wilson case.

As described above, the Westlaw system allows the researcher to see a list of

24   citing cases, such as that provided by Shepard's Citations. However, the Westlaw
system requires the user to move to another screen to see these citations, thereby

26   covering the displayed text of the case of interest. This is distracting to the
researcher, because once the text of the case is no longer displayed, the researcher

28   cannot refer back to the displayed text without removing the citations from the
screen. In addition, because the citations list in Westlaw can often be many screens

in length, the user must perform the tedious task of paging through the entire citations list and uncovering those citations that are relevant to the particular portion of the displayed document that the researcher is studying. The Westlaw system and others in the art are therefore relatively unsophisticated in the manner in which they display lists of citing cases. None of the computer-based research systems in the art provide a listing of which citing cases based on the context of the displayed document. Thus, none provide any indication of which citing cases specifically refer to the text displayed on the screen or selected by the user.

SUMMARY OF INVENTION

The present invention relates to a method of displaying documents in a research system. In one embodiment, the method involves displaying at least a portion of a first document and simultaneously displaying a representation of one or more citing documents. The citing documents cite some portion of the displayed document.

In another embodiment, the method involves displaying at least a portion of a first document, and displaying a representation of one or more citing documents, wherein the citing documents cite the displayed portion of the first document. The citing documents could alternatively cite a highlighted part of the displayed portion of the first document.

Other embodiments are described in the Detailed Description.

It is an object of the present invention to provide a method and system for efficiently researching interrelated documents.

It is a further object of the present invention to provide a method and system for analyzing the precedential value of a judicial opinion.

It is a still further object of the present invention to provide a method and system for effectively conveying to the researcher information concerning the interrelationships of documents.

BRIEF DESCRIPTION OF THE DRAWINGS

Figures 1a to 1d are displays illustrating the operation of the Westlaw research system.

Figure 2 is a block diagram of a system in accordance with an embodiment of the present invention.

Figure 3a is a view of a screen on which the text of a document is displayed, and representations of citing documents are also displayed.

Figure 3b is a view of the screen of Figure 3a after the user has scrolled the text of the document.

Figure 3c is a view of the screen after selection of one of the representations of the citing documents.

Figure 4 is a flow diagram of the process steps in one embodiment of the present invention.

Figure 5a is a view of a screen in another embodiment of the present invention.

Figure 5b illustrates the updating of the citing cases box upon scrolling the text of the displayed document.

Figures 5c and 5d illustrate further updating of the citing cases box.

Figure 5e illustrates the change to the display after selection of one of the representations.

Figure 5f illustrates the selection of another representation.

Figure 5g illustrates the selection of the previous case representation.

Figures 5h and 5i illustrate the further selection of representations of citing cases.

Figure 6 is a flow diagram of process steps similar to that carried out in connection with Figures 5a to 5i.

Figure 7a is a view of a screen on which the text of a document is displayed, and representations of citing documents are also displayed.

Figure 7b illustrates the retention of representations of previous citing cases in the citing cases box.

Figure 7c further illustrates the retention of representations of previous citing cases in the citing cases box.

Figure 7d illustrates and points out markers or highlighting that is used to indicate which representations have already been displayed.

Figure 8 is a flow diagram of process steps similar to that carried out in connection with Figures 7a to 7d.

Figure 9a is a view of a screen on which the text of a document is displayed, as well as a citing cases box and a citing cases bin.

Figure 9b is a view of the screen of Figure 9a after the user has scrolled the text of the document.

Figure 9c illustrates the updating of the citing cases box and the citing cases bin when the text of the displayed document is scrolled.

Figure 9d illustrates the updating of the display upon selection by the user of a representation of a citing case.

Figure 10a is a view of a screen in another embodiment of the present invention, in which the text of a document is displayed.

Figure 10b is a window displayed upon selection of button 1008 in Figure 10a.

Figure 10c illustrates the scrolling of the text of the document displayed in Figure 10a.

Figure 10d illustrates how the window of Figure 10b would be updated upon the scrolling of the text as shown in Figure 10c.

Figure 10e illustrates the selection of one of the representations of citing cases in Figure 10d.

Figure 10f illustrates a window that could be employed in alternative embodiment of the present invention.

Figure 11 is a flow diagram of process steps similar to that carried out in connection with Figures 10a to 10e.

Figure 12a is a view of a web page in an internet-based implementation of the

2   present invention.

Figure 12b illustrates a different portion of the web page of Figure 12a.

4   Figure 12c illustrates the bottom of the web page of Figure 12a, where a
representation of a citing case is displayed at the bottom of the web page.

6   Figure 12d is a view of the web page retrieved upon selection of the
representation in Figure 12c.

8   Figure 12e is a view of a different portion of the web page of Figure 12d.

Figure 12f illustrates the bottom of the web page of Figure 12d, where

10   representations of citing cases are displayed at the bottom of the web page.

12   DETAILED DESCRIPTION

The present invention relates to a method of displaying interrelationships of

14   documents on a computer screen. Specifically, the present invention relates to a
computerized research system that provides the researcher with information about

16   documents that cite a document that the user is studying.

Figure 2 shows a block diagram of a system in one embodiment of the present

18   invention. The system 200 has a central processing unit (CPU) 201, a memory unit
202, and i/o circuitry 203. The cpu 201 is connected to i/o circuitry 203 to permit data

20   transfers with input devices 205 and display 204. The input device 205 can be a
keyboard, pen, mouse, voice-recognition circuitry, or any other input device known

22   to those in the art. Some type of secondary or mass storage 206 is generally
considered desirable. In a typical implementation, the secondary storage is a hard or

24   floppy disk. Generally, any data storage medium as is known in the art can be used
as the secondary storage 206. The secondary storage 206 can also be eliminated by

26   providing a sufficient amount of memory in the memory unit 202. The memory
202 or, alternatively, the secondary storage 206 are considered data storage mediums.

28   It is also possible to have an input device act as a data storage medium.

The physical structure of the database 207 may involve one or more hard

2   disks, CD-ROMs, or any other mass storage devices and may or may not be
distributed. The database 207 may also be integrated into the secondary storage

4   device 206. As is well known in the art, the database 207 can be near or local to the
CPU 201, or it can be remotely located relative to the CPU 201. Any type of database

6   207 that is capable of operating according to the present invention is appropriate.

Figure 3a is a display illustrating one embodiment of the present invention in

8   which the text window 302 shows the text of the first portion of the Graver Tank
case that was decided by the U.S. Supreme Court in 1950. The title window 304

10 contains the brief title of the Graver Tank case, and the box 310 shows a citation to
the Graver Tank case. The scroll bar 306 allows the user to scroll through the text of

12 the Graver Tank case by selecting the down arrow button 308 or by moving the scroll
button 316 in a manner well known in the art. Figure 3b shows the text window 302

14 after the user has moved the scroll button 316 down slightly.

Figures 3a and 3b also show a citing cases box 311 in which representations 312

16 of a number of cases that cite the Graver Tank case are listed. The citing cases box
311 is simply an area on the screen in which the representations of citing cases can

18 be placed. Scroll bar 314 allows the user to scroll through additional representations
of citing cases when there are more representations of citing cases in the box 311

20 than there is room for on the screen. Preferably, the citing cases box would include a
representation of all existing cases that cite the Graver Tank case. However,

22 normally only those cases in the database 207 that cite the Graver Tank case are
shown. The database 207 may or may not be up-to-date.

24 The representations of the cases in the box 311 can be listed in a particular
order, such as by date decided, or by jurisdiction, or by some other characteristic. It is

26 also possible to include only a subset of the cases in the database. For example, the
user may only be interested in seeing representations of cases that come from a

28 particular court or group of courts, or from a particular period of time.

A representation is herein defined to be any indication, marker, button, menu item, link, or reference associated with another a document. A representation could also be labelled with the title, citation, or some other portion of the document. However, the representation need not be labelled as shown in the Figures. Representations may have any other labelling or alternatively, no labelling at all. A representation may correspond to a single document, or it may correspond to more than one document, or a group of documents. For example, instead of having a representation for each document, a representation may be simply a button that corresponds to a plurality of documents, where the representation is labelled to indicate the number of citations the representation corresponds to.

In Figures 3a and 3b, the citing cases box 311 has a representation 312 for each of the cases that cite the Graver Tank case. In the embodiment shown, the citing cases box 311 contains eight representations of cases that cite the Graver Tank case. The representations 312 shown in this embodiment are labelled so as to indicate the name 315 of the citing case, the citation 316 to the citing case, the paragraph 317 in the citing case that cites the Graver Tank case, and also the Graver Tank paragraph 318 that is cited by the citing case. Thus, from this first representation, it can be seen that paragraph 43 of the Pennwalt case cites the sixth paragraph of the Graver Tank case. Similarly, the representation at the top of the box indicates that paragraph 13 of the Pennwalt case, which is reported at 833 F.2d 931, cites paragraph four of the Graver Tank case. There is more than one representation for the Pennwalt case because the Pennwalt case cites the Graver Tank case more than once. Similarly, the citing cases box 311 shows the Perkin-Elmer case cites the sixth paragraph of the Graver Tank case three times.

The user can display one of these citing cases by selecting a representation shown in the citing cases box 311. Figure 3c shows how the display is updated when the user selects the first representation shown in the citing cases box 311. Selection can be done by any means known in the art, such as by keyboard, mouse, pen, touch-screen, voice command, or otherwise. The text box 302 of Figure 3c has been

updated to show the beginning of the Pennwalt case, which corresponds to the

2   representation at the top of the citing cases box 311 in Figure 3b. The user can scroll through the text of the Pennwalt case in Figure 3c by manipulating the scroll bar 306.

4   Also as shown in Figure 3c, the citing cases box 311 is updated to contain representations of the cases that cite the Pennwalt decision. The representations of

6   the cases citing the Graver Tank case are removed from the citing cases box 311. Thus, when the text box contains a new case, the citing cases box 311 is updated to

8   reflect the cases that cite the new decision.

        Figure 4 is a flow chart illustrating an embodiment similar to that described

10   in connection with Figures 3a, 3b, and 3c. As shown, the first step 401 in the flow chart involves simultaneously displaying a portion of a document (such as the

12   portion displayed in the text box 302 in Figures 3a to 3c), and also simultaneously displaying representations of documents that cite the displayed document. This

14   simultaneous display allows the user to see, at the same time, both the text of the document, and also the representations of the citing cases.

16   In the next step 402, the system checks to see if the user has selected one of the representations. Once the user does select one of the representations, step 403

18   updates the display to show the citing case corresponding to the selected representation and also to show representations of cases that cite the new displayed

20   case.

        Figures 5a to 5i illustrate an alternate embodiment of the present invention

22   in which the citing cases box only lists representations of cases that cite the displayed text. For example, in the text box 302 of Figure 5a, the first few lines of the Graver

24   Tank case are shown. As illustrated in Figure 3a, there are a number of cases that cite some portion of the Graver Tank case. However, in Figure 5a, none of those

26   cases specifically cite the any of the text shown in the text box 302. Instead, the citing cases listed in the citing cases box 311 of Figure 3a all cite some other portion of the

28   Graver Tank case.

Figure 5b shows the display after the user has scrolled down by using the

2   scroll bar 306 so that the first line 501 of the 4th paragraph of the Graver Tank case is

displayed in the text box 302. (For convenience, the beginning of each paragraph in

4   the text of cases is marked with the characters "[Pn]," where n is the paragraph

number.) In Figure 5b, the citing cases box 311 is no longer empty. The box 311

6   contains a representation of the Pennwalt case, which cites paragraph 4 of the

Graver Tank case. Thus, the citing cases box in Figure 5b is periodically (or

8   continually) updated so that it contains only representations of those citing cases

that cite the text displayed in the text box 302. In the example shown in Figures 5a

10   to 5i, the citing cases box 311 contains representations of cases that cite any paragraph

that has at least one line displayed in the text box 302.

12   As the user further scrolls through the text of the Graver case, the citing cases

box 311 is updated as paragraphs are displayed in the text box 302 and removed from

14   the text box 302. For example, in Figure 5c, paragraphs four and five of the Graver

Tank case are displayed in their entirety, and a portion of paragraph six is displayed

16   in the text box 302. The citing cases box 311 in Figure 5c therefore contains

representations of those citing cases that cite paragraphs four, five, and six of the

18   Graver Tank case. When the user continues to scroll through the text of the Graver

Tank case so that, as shown in Figure 5d, only paragraph six of the Graver Tank case

20   is displayed, and the citing cases box 311 is updated so that only the cases that cite

paragraph six of the Graver Tank case are represented in the box 311. Thus,

22   representation 509 (which corresponds to a case citing paragraph four of the Graver

Tank case) is in the citing cases box 311 in Figure 5c, but is removed from the box 311

24   when paragraph four is no longer in the text box 302 as shown in Figure 5d.

            Representation 504 in the citing cases box 311 corresponds to the Pennwalt

26   case, which cites the sixth paragraph of the Graver Tank paragraph. This citation to

Graver Tank occurs at the nineteenth paragraph of the Pennwalt case, which is

28   reported beginning at page 931 of volume 833 of the F.2d Reporter series. If the user

were to select representation 504 in the citing cases box 311, the display would be

updated in the embodiment of Figures 5a to 5i so that the citing paragraph in the

2   Pennwalt case (paragraph 19) is displayed in the text box 302 as shown in Figure 5e. The nineteenth paragraph has been displayed because that is the paragraph that cites

4   the previously displayed 6th paragraph of the Graver Tank case (see Figure 5d). The citing cases box 311 is updated to contain representations of only those cases that cite

6   the nineteenth paragraph of the Pennwalt case.

At 508 in Figure 5d, the "function-way-result" doctrine is set forth in

8   paragraph six of the Graver Tank case. The "function-way-result" doctrine is a legal doctrine relating to whether devices perform "substantially the same function in

10 substantially the same way to obtain the same result." See 508 in Figure 5d. In Figure 5e, the Graver Tank case has been cited at 506 by the Pennwalt case to support

12 the "function-way-result" doctrine set forth at 510 in paragraph 19 of the Pennwalt case. Thus, paragraph 19 includes a citation to paragraph 6 of the Graver Tank case.

14 As has been described in connection with Figures 5a to 5e, it is possible in the present invention to move directly from the cited case to the position in the citing

16 case where the discussion of the cited case occurs. This ability to move directly from the cited document (Graver Tank) in the example shown to the citing document

18 (Pennwalt) allows the researcher to easily, quickly, and efficiently evaluate the effect of the Pennwalt decision on the legal doctrine set forth in the Graver Tank. This is

20 significant and quite useful because the validity of the law set forth in any case or legal writing can be greatly affected by cases that later evaluate the earlier case. Thus,

22 legal researchers have a need for convenient and efficient access to those cases that discuss specific legal issues decided in any given case. The foregoing procedure

24 satisfies this need, and greatly simplifies legal research.

Figure 5e shows an updated citing cases box, this one showing only two

26 representations of citing cases. These cases are the London case and the Wilson case, both of which cite paragraph 19 of the Pennwalt case. When representation 515 is

28 selected, the display is updated to that shown in Figure 5f which shows paragraph 12 of the London case beginning at the top of the text box 302. Paragraph 12 contains a

citation to the previous case, Pennwalt. In Figure 5f, the citation to the Pennwalt

2 case is shown at 514, and the recitation of the "function-way-result" doctrine is set

forth at 516. Thus, the London case cites paragraph 19 of the Pennwalt decision as

4 authority for the "function-way-result" doctrine. No cases within the database cite

paragraphs 12, 13, or 14 of the London case, so the citing cases box 311 is empty.

6 The user can backtrack back to the Pennwalt decision by selecting the

representation or button 518 shown in Figure 5f, which updates the text box 302 and

8 the citing cases box 311 to appear just as that shown in Figure 5e. The previous case

representation 518 is updated to correspond to the London case. Thus, the display is

10 as shown in Figure 5g, which is differs from that in Figure 5e only with respect to

representation 518.

12 From Figure 5g, the user again has the opportunity to select the

representation for the Wilson case which also cites the paragraph 19 of the Pennwalt

14 decision. By selecting the representation 520 in Figure 5g, the display is updated as

shown in Figure 5h. Paragraph 36 of the Wilson decision is shown starting at the

16 top of the text box 302 in Figure 5h. The citation to the Pennwalt decision in

paragraph 36 of the Wilson case is indicated at 522. The "function-way-result"

18 doctrine, for which the Pennwalt case is cited, is set forth at 524 of Figure 5h.

Unlike the London case, there are cases that cite the paragraph of the Wilson

20 case which cites the Pennwalt case. Therefore, the citing cases box 311 in Figure 5h is

not empty. When representation 526 in the citing cases box 311 is selected, the

22 display is updated to that shown in Figure 5i.

Figure 5i shows the updated display with the text box showing paragraph 13 of

24 the Conroy decision, and the citation to the Wilson case at 528. However, the

doctrine for which the Wilson case is being relied upon is different than the

26 "function-way-result" doctrine that has been traced from the Graver Tank decision.

At 532 of Figure 5h, the Wilson case sets forth the proposition that "there can be no

28 infringement if the asserted scope of equivalency of what is literally claimed would

encompass the prior art." This is the proposition for which the Conroy case is citing

paragraph 36 of Wilson decision. The law cited in paragraph 36 of Wilson case is

2   applied at paragraph 530 of Figure 5i.

Figure 6 is a flow chart of steps carried out by an embodiment of the present

4   invention that is similar to that described in connection with Figures 5a to 5i, where

step 601 displays a portion of a document, and step 602 displays in the citing cases

6   box only those representations of citing documents that cite the displayed portion

from step 601. The user is continually monitored to determine at 603 whether the

8   displayed text has changed (e.g., by virtue of the user scrolling the display text). If the

text has changed, the representations of the citing cases are updated at 604. The user

10   is also monitored at 605 to determine whether a citing document has been selected.

When a citing document is selected, the display is updated to show a portion of the

12   selected document. At step 602, restarting the procedure, the citing cases box is also

updated to contain representations of citing cases that cite the newly displayed text.

14   Figures 7a to 7d show an alternate embodiment of the present invention that

is similar to the embodiments shown in connection with Figures 5a to 5i and the

16   flow chart of Figure 6. The embodiment of Figures 7a to 7d differs from other

embodiments in that representations of citing cases remain in the citing cases box

18   after the display has been updated. In the previously-described embodiments, the

citing cases that no longer correspond to the text shown on the display are removed

20   from the citing cases box.

In Figure 7a, the Pennwalt decision is shown with paragraph 19 of that

22   decision shown in the text box 302. Representations of two citing cases (London and

Wilson), are shown in the citing cases box 311. Both London and Wilson cite

24   paragraph 19 of the Pennwalt decision. When the user selects representation 702 in

the citing cases box, the display is updated as shown in Figure 7b. The text box 302 in

26   Figure 7b shows paragraph 12 (and 13 and 14) of the London decision. Unlike

previous embodiments, however, the representations of the London and the

28   Wilson cases remain in the citing cases box 311.

Retaining representations of citing cases in the citing cases box 311 allows the

2   user to collect an list of relevant cases by traversing a number of linked cases. This is
    important because the user may otherwise have to remember or come back to the

4   cases that he or she initially decides not to examine. This situation is illustrated in
    Figures 5e to 5h, where it was necessary to backtrack from the London case (Figure

6   5f) back to the Pennwalt case (Figure 5g), and then to the Wilson case (Figure 5h) to
    display all of the cases that cite paragraph 19 of the Pennwalt case (see Figure 5e, and

8   previous discussion). By retaining representations of citing cases, such a procedure
    is unnecessary. In Figure 7b, the Wilson case can be displayed at any time upon

10 selection by the user of representation 703, even when Wilson does not cite the
    displayed document.

12   Figure 7c shows the updated display after representation 703 is selected in
    Figure 7b. The citing cases box 311 of Figure 7c shows an additional representation

14 in the citing cases box 311 corresponding to the Conroy case, which cites the
    displayed paragraph 36 of the Wilson decision. When the representation 704 is

16 selected, the display is updated as shown in Figure 7d. As shown in Figure 7d,
    representations of the Conroy, Wilson and London cases are still shown in the cited

18 cases box.

          The displays of Figures 7a through 7d have a clear button 715 that is used to

20 clear the citing cases box 311 of all representations of citing cases. This permits the
    user to start collecting citing cases from scratch at any given point during research.

22 Figures 7b to 7d also show a highlight or marker 711 that indicates which
    representations have already been displayed. Highlighting in this manner allows

24 the user to determine, by looking at each representation, those which he or she has
    already studied or already displayed. Such highlighting therefore provides a means

26 by which the user will know when he or she has looked at all of the citing cases.
    Highlighting can be done as shown in Figure 7d by placing a marker on or next to

28 each representation, or highlighting can also be done by changing the color of the
    representation, by changing the font, or by any other manner that makes it clear

which cases have been viewed and which cases have not. Similarly, in another

2   embodiment, it may be desirable to remove from the citing cases bin the cases that
     have already been viewed by the user.

4   Figure 8 shows a flow chart that is very similar to that of the flow chart in
     Figure 6 and also is similar to the embodiment shown in connection with Figures 7a

6   to 7d. The flow chart in Figure 8 differs from that of Figure 6 only in that step 802
     involves retaining the representations of the previous citing documents, whereas

8   the corresponding step 602 in Figure 6 does not retain the previous representations.

          Another embodiment of the present invention is shown in connection with

10   Figures 9a to 9d. This embodiment demonstrates that it is possible to keep a separate
     bin of citing cases in which to retain all of the cases that have previously been cited.

12   For example, in Figure 9a, the first portion of the text of the Graver Tank case is
     shown. In Figure 9b, the user has scrolled through the text of the Graver Tank case

14   for a few lines. There do not happen to be any cases that cite the displayed text of the
     Figures 9a or 9b, so the citing cases box 311 is empty for in both situations.

16   In Figure 9c the user has scrolled down somewhat so that portions of
     paragraphs two through five of the Graver Tank case are displayed. The Pennwalt

18   decision cites paragraph 4 of the Graver Tank case, so a representation of the
     Pennwalt case is displayed in the citing cases box 311, and also in the citing cases bin

20   911. When the user selects the representation 902 (or alternatively, 904), the
     Pennwalt decision is displayed as shown in Figure 9d and the citing cases box 311 is

22   emptied because no cases (in the database) cite paragraph 13 of the Pennwalt
     decision. The citing cases bin 911, however, retains the representation of the

24   previously cited case.

          The embodiment of Figures 9a to 9c operates very similar to that of Figures 7a

26   to 7d, the difference being that all cases are retained in the citing cases bin 911, and
     the citing cases box 311 only contains those cases that cite the currently displayed

28   text.

In another embodiment, a citing cases bin similar to that described in
2   connection with Figures 9a to 9c could contain all of the representations of cases that
cite the displayed case, rather than previous representations. In other words,
4   representations for all of the cases that cite the displayed case could be listed in the
citing cases bin 911, but the citing cases box 311 could be used for only those
6   representations of cases that cite the text displayed in the text box 302. This division
or arrangement could effectively convey to the user which citing cases cite the
8   displayed text, and which citing cases cite some other portion of the displayed case.

Figures 10a to 10f illustrate yet another embodiment of the present invention
10   in which the citing cases box 311 is not displayed on the same screen or
simultaneously with the text box 302 that contains the text of the displayed case. In
12   Figure 10a, for example, the text box 302 shows the Graver Tank opinion, and the
title box 304 shows the title of the Graver Tank opinion. The scroll bar 306 allows
14   the user to scroll through the Graver Tank opinion in the manner known in the art.

The citation button 1008 allows the user to bring up a window 1001 such as
16   that shown in Figure 10b. This window contains a citing cases box 311, which lists
the representations of the cases citing the text displayed in the text box of Figure 10a.
18   There are no cases that cite the text displayed in Figure 10a, so citing cases box 311 in
Figure 10b is empty. However, this changes as the user scrolls down through the
20   text in the manner shown in Figure 10c. The window 1001 that is brought up upon
selection of the button 1008 in Figure 10c is shown in Figure 10d. The citing cases
22   box 311 in Figure 10d shows includes a representation of the Pennwalt case. As in
the embodiments described above, the user can select a representation in the citing
24   cases box 311. When the representation 1010 is selected in Figure 10d, the Pennwalt
decision is displayed as shown in Figure 10e.

26   Figure 10f shows a window 1002 which can be used as an alternative to that
shown in Figure 10b. The window 1002 has a citing cases box 311 and a citing cases
28   bin 911, which operate in a manner similar to that described in connection with
Figures 9a to 9d.

Figures 10a to 10f describe embodiments in which the text of a case and the

2   representations of citing documents are not displayed simultaneously. Rather, when button 1008 is selected, window 1001 (or in an alternative embodiment,

4   window 1002) is shown on the display. The window 1001 may completely displace showing the text of the cited case, or it may only partially obstruct the displayed text

6   of the cited case.

Figure 11 is a flow chart that is similar to the embodiment described in

8   connection with Figures 10a to 10f. Step 1101 simply involves displaying a portion of a document. In step 1102, the user is monitored to determine whether he or she

10   has requested a list of cites (e.g., by selecting the button 1008 in Figure 10a). If so, representations of cases citing the displayed text are displayed in step 1103. The user

12   then may select one of the representations in step 1104, and if this is done, a portion of the document corresponding to the selected document is displayed at step 1105.

14   Alternatively, the user may choose to go back to the cited case, or in other words, display the text of the cited case that was displayed at step 1101. See step 1106.

16   Figures 12a to 12f illustrate an embodiment of the present invention that has been implemented on the internet's World Wide Web. Figure 12a shows a web

18   page displayed in the Netscape browser available from Netscape Communications Corp. The web page 1201 shown in Figure 12a corresponds to page 42 of volume 280

20   of the U.S. Reports series. This page is part of the 1929 U.S. Supreme Court decision of *Sanitary Refrigerator Co. v. Winters*. The *Sanitary Refrigerator* case starts on page

22   30 of volume 280 of the U.S. Reports. In the World Wide Web implementation of Figures 12a to 12f, one or more web servers of the type known well in the art are

24   connected to the internet. For simplicity, each web page corresponds to the paper pages in the actual bound U.S. Reports. Thus, the web server has a web page for

26   each page within each volume of the U.S. Reports.

Depending on the user's web browser and hardware, some or all of the web

28   page 1201 will be displayed in the browser display 1202. The scroll bar 1203 allows

the user to scroll through the web page. Figure 12b shows the middle portion of the web page, which is displayed when the scroll box 1207 is moved as shown.

When the scroll box 1207 is moved to the bottom of the scroll bar, as shown in Figure 12c, the bottom of the web page is shown. The last line of page 42 of U.S. Reports volume 280 is shown at 1210 in Figure 12c. Below this last line is a representation 1212 of the Graver Tank case. This representation 1212 indicates that the Graver Tank case cites the displayed page (i.e., page 42 of U.S. Reports volume 280). The representation 1212 also indicates that the citation to page 42 of the Sanitary Refrigerator case is located at page 608 of U.S. Reports volume 339.

The representation 1212 in Figure 12c is a link to another web page on the web server database. On the world wide web, these links are implemented with a hypertext protocol, such as HTML (HyperText Markup Language). As is well known in the art, selecting the representation 1212 will retrieve another web page from the appropriate web server. This new web page 1213 is shown in Figure 12d, and as can be seen, the web page 1213 corresponds to page 608 of the Graver Tank case from volume 339 of the U.S. Reports.

Figure 12e is the web page of Figure 12d after the user has scrolled down the page a few lines. The citation to the Sanitary Refrigerator case is shown at 1215 in Figure 12e. And as can be seen at 1216 of Figure 12e (see also 1216 at Figure 12d), the proposition for which the Sanitary Refrigerator case is cited is the function-way-result doctrine. This doctrine is set forth in the Sanitary Refrigerator case at 1218 in Figure 12b, which is page 42 of U.S. Reports volume 280.

Figure 12f shows the bottom of the Graver Tank web page, which has at 1221 representations of citing cases. The Graver Tank text displayed in the web page of Figures 12d, 12e, and 12f corresponds to the first part of paragraph six in Figure 5d. Thus, the citing cases shown represented in Figure 5d are the same as the eight citing cases represented at 1221 of the web page in Figure 12f. Selection of one of the eight representations 1221 will retrieve the corresponding web page.

In another embodiment, additional representations may be present at the
2   bottom of the web page of Figure 12f. Such additional representations may
correspond to cases that cite the displayed case generally or at other pages, and not
4   specifically the displayed page. In other words, it is not necessary to limit the
representations in the embodiment of Figures 12a to 12f to only those cases that cite
6   the displayed page of the document.

The world wide web implementation illustrated in connection with Figures
8   12a to 12f is particularly attractive because setting up the database of documents and
configuring the cross-references to citing cases can be relatively straight-forward.
10 Determining which of the cases cite a particular page is done, for the most part, by
simply searching the text of the cases for a specific citation to each U.S. Reports page.
12 A representation for each case that cites a given page in the U.S. Reports is generated
and incorporated in to the corresponding U.S. Reports web page. Thus, the citation
14 system used by the court itself is used to determine the specific cross-references to
and from the various cases, so no translation into other pages or paragraphs or line
16 numbers or other units is necessary.

In other embodiments, where a citation system is used that is different from
18 the system employed by the court, the court's citations must be translated into the
citations used by the computerized research system. In other words, if a court cites
20 cases by referencing a page number in a particular volume, and the research system
uses a paragraph-based citation system (e.g., as in Figures 5a to 5i), the court's page
22 number citations will be translated into corresponding paragraph number citations.

Although more tedious translation may be required, it is preferred that
24 smaller units be used for the citation system. For example, a citation to a given page
does not unequivocally identify which of the statements of law is being cited on that
26 page. Therefore, not all of the citing cases for a particular page will be helpful to the
researcher when he or she is interested in only one of the many statements of law
28 occurring on the page. This problem is illustrated in Figures 5h and 5i, where the
Conroy decision cited the Wilson case for a proposition that was different than the

function-way-result issue that was being reviewed in Figures 5a to 5g. This occurred

2 because paragraph 36 of the Wilson case contained more than one citable statement
of law. A paragraph-based citation system is often better than a page-based citation

4 system because paragraphs are usually smaller than pages and therefore contain
fewer statements of law than do pages. But as shown in Figures 5h and 5i, a

6 paragraph-based citation system is not immune to the problem.

A citation system employing an even smaller unit, such as a sentence-based

8 citation system, would virtually eliminate the foregoing problem. However, such a
citation system requires a significant amount of tedious translation if citations are

10 not already in a sentence-based form.

In another embodiment of the present invention, the representations in the

12 citing cases box would not necessarily correspond to the displayed text, but would
rather correspond to displayed text that is specifically selected (i.e., highlighted) by

14 the user. Such an embodiment would be particularly appropriate for a sentence-
based citation system, because the selection of one or more sentences would indicate

16 which citing cases are of interest to the user. In other words, when the user has
selected a specific section of the displayed portion of a document, this can be an

18 indication that the user wishes to see only those citing cases that correspond to the
selected portion. Thus, in an embodiment of the present invention, the citing cases

20 box could contain representations of only those citing cases that cite the selected
portion of the displayed text.

22 It is contemplated that the present invention will be implemented, in at least
some embodiments, on a computer that employs software to carry out the functions

24 described above. The software is stored on a data storage medium that is accessible
by the computer in a manner known in the art. The effective implementation of

26 the present invention is obviously not necessarily dependent on the type of storage
medium employed, and the data storage medium could therefore be of any type

28 (including, without limitation, optical, magnetic, or hardware-based storage media).

Although the present invention has been shown and described with respect to preferred embodiments, various changes and modifications that are obvious to a person skilled in the art to which the invention pertains, even if not shown or specifically described herein, are deemed to lie within the spirit and scope of the invention and the following claims. The present invention is not to be limited to any specific database implementation or to any specific network implementation. What is contemplated is any system appropriate for practicing the invention as set forth in the claims. The cases and corresponding citing documents described herein are merely for illustration purposes, and no invention-related significance is to be given to them other than that specifically mentioned herein. In the claims, any means-plus-function clauses are intended to encompass not only structural equivalents but also equivalent structures. What is claimed is: